During November, try the new LSUS format of legal status information in the  ${\rm CA/CAplus}$  family databases for free! Complete details on the number of free displays and other databases participating in this offer appear in NEWS 10.

=>

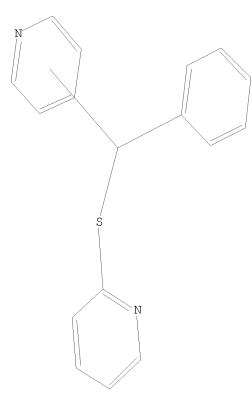
Uploading C:\Program Files\Stnexp\Queries\10561838e.str

L1 STRUCTURE UPLOADED

=> d

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1 sss sam REG1stRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress... Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

SAMPLE SEARCH INITIATED 15:29:22 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 309 TO ITERATE

100.0% PROCESSED 309 ITERATIONS 0 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*

BATCH \*\*COMPLETE\*\*

PROJECTED ITERATIONS: 5126 TO 7234

PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1

L3 0 L2

=> s l1 sss full REG1stRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress... Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

THE ESTIMATED SEARCH COST FOR FILE 'REGISTRY' IS 185.40 U.S. DOLLARS DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y FULL SEARCH INITIATED 15:29:35 FILE 'REGISTRY' FULL SCREEN SEARCH COMPLETED - 5936 TO ITERATE

100.0% PROCESSED 5936 ITERATIONS 8 ANSWERS

SEARCH TIME: 00.00.01

L4 8 SEA SSS FUL L1

L5 4 L4

=> d 1-4 ibib abs hitstr THE ESTIMATED COST FOR THIS REQUEST IS 22.56 U.S. DOLLARS DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:y

L5 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2008:608265 CAPLUS

DOCUMENT NUMBER: 148:585731

TITLE: Preparation of phenylsulfonylmethylpyridine and

phenylsulfinylmethylpyridine derivatives as inhibitors

of  $\beta$  amyloid protein production

INVENTOR(S): Miyauchi, Satoru; Kubota, Hideki; Motoki, Kayoko; Ito,

Masayuki

PATENT ASSIGNEE(S): Daiichi Sankyo Co., Ltd., Japan SOURCE: Jpn. Kokai Tokkyo Koho, 149pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT:

PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE \_\_\_\_\_ \_\_\_\_ \_\_\_\_\_ JP 2008115166 20080522 JP 2007-262868 20071009 PRIORITY APPLN. INFO.: JP 2006-276719 A 20061010 OTHER SOURCE(S): MARPAT 148:585731

GΙ

AB The title compds. I [Ar1 = Ph having substituent; Ar2 = (un)substituted Ph , (un)substituted heterocyclic group; X = S, SO, SO2; Y = H, NR1R2, OR1'; R1 = H, alkyl, OH; R2 = H, (un)substituted alkyl, (un)substituted alkoxy, etc.; R1' = H, (un)substituted alkyl; Z = O, S; R3 = H, alkyl, halo] are prepared Thus,  $5-[[(4-\text{chlorophenyl})\text{sulfonyl}](2,5-\text{difluorophenyl})\text{methyl}]-N,4-dimethylpyridine-2-carboxamide was prepared in a multistep process starting from 2,5-dibromo-4-methylpyridine and 2,5-difluorobenzaldehyde. The <math display="inline">\beta$  amyloid protein production inhibiting activity of compds. of this invention was demonstrated.

IT 913090-90-1P

RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of phenylsulfonylmethylpyridine and phenylsulfinylmethylpyridine derivs. as inhibitors of  $\beta$  amyloid protein production)

RN 913090-90-1 CAPLUS

CN 2-Pyridinecarboxamide, 5-[(2,5-difluorophenyl)[[5-(trifluoromethyl)-2-pyridinyl]sulfonyl]methyl]-N-(2-hydroxyethyl)-4-methyl- (CA INDEX NAME)

ΙT 913090-88-7P 913090-89-8P 913091-80-2P

> RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of phenylsulfonylmethylpyridine and

phenylsulfinylmethylpyridine derivs. as inhibitors of  $\beta$  amyloid

protein production)

913090-88-7 CAPLUS RN

2-Pyridinecarboxaldehyde, 5-[(2,5-difluorophenyl)[[5-(trifluoromethyl)-2-pyridinyl]thio]methyl]-4-methyl- (CA INDEX NAME) CN

RN 913090-89-8 CAPLUS

CN 2-Pyridine carboxylic acid, 5-[(2,5-difluorophenyl)][5-(trifluoromethyl)-2pyridinyl]sulfonyl]methyl]-4-methyl- (CA INDEX NAME)

07/11/2009 TOh

10/923,271

RN 913091-80-2 CAPLUS

CN Pyridine, 2-bromo-5-[(2,5-difluorophenyl)[[5-(trifluoromethyl)-2-pyridinyl]thio]methyl]-4-methyl- (CA INDEX NAME)

L5 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:1093716 CAPLUS

DOCUMENT NUMBER: 145:438535

TITLE: Preparation of pyridylmethylsulfone derivatives as

inhibitors of production/secretion of  $\beta$ -amyloid

protein

INVENTOR(S): Miyauchi, Satoru; Kubota, Hideki; Motoki, Kayoko; Ito,

Masayuki

PATENT ASSIGNEE(S): Daiichi Pharmaceutical Co., Ltd., Japan

SOURCE: PCT Int. Appl., 191pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

|        | ATENT                |             |     |     | KIND DATE  |                 |      |      |     |                                  | PLICAT          |      |      |     |     |          |          |  |  |  |
|--------|----------------------|-------------|-----|-----|------------|-----------------|------|------|-----|----------------------------------|-----------------|------|------|-----|-----|----------|----------|--|--|--|
|        |                      |             |     |     | A1 2006101 |                 |      |      |     |                                  |                 |      |      |     |     |          |          |  |  |  |
|        | W:                   | ΑE,         | AG, | AL, | ΑM,        | AT,             | AU,  | ΑZ,  | BA, | BE                               | в, вG,          | BR,  | BW,  | BY, | BZ, | CA,      | CH,      |  |  |  |
|        |                      | CN,         | CO, | CR, | CU,        | CZ,             | DE,  | DK,  | DM, | D2                               | Z, EC,          | EE,  | EG,  | ES, | FI, | GB,      | GD,      |  |  |  |
|        |                      | GE,         | GH, | GM, | HR,        | HU,             | ID,  | IL,  | IN, | IS                               | S, JP,          | KE,  | KG,  | KM, | KN, | KP,      | KR,      |  |  |  |
|        |                      | KΖ,         | LC, | LK, | LR,        | LS,             | LT,  | LU,  | LV, | $\Gamma$                         | Y, MA,          | MD,  | MG,  | MK, | MN, | MW,      | MX,      |  |  |  |
|        |                      | MZ,         | NA, | NG, | NI,        | NO,             | NZ,  | OM,  | PG, | ΡF                               | H, PL,          | PT,  | RO,  | RU, | SC, | SD,      | SE,      |  |  |  |
|        |                      | SG,         | SK, | SL, | SM,        | SY,             | TJ,  | TM,  | TN, | TF                               | R, TT,          | TZ,  | UA,  | UG, | US, | UΖ,      | VC,      |  |  |  |
|        |                      | VN, YU, ZA, |     |     | ZM,        | ZW              |      |      |     |                                  |                 |      |      |     |     |          |          |  |  |  |
|        | RW:                  | AT,         | BE, | BG, | CH,        | CY,             | CZ,  | DE,  | DK, | EF                               | E, ES,          | FΙ,  | FR,  | GB, | GR, | HU,      | ΙE,      |  |  |  |
|        |                      | IS,         | IT, | LT, | LU,        | LV,             | MC,  | NL,  | PL, | PΊ                               | Γ, RO,          | SE,  | SI,  | SK, | TR, | BF,      | ВJ,      |  |  |  |
|        |                      | CF,         | CG, | CI, | CM,        | GA,             | GN,  | GQ,  | GW, | MI                               | L, MR,          | ΝE,  | SN,  | TD, | TG, | BW,      | GH,      |  |  |  |
|        |                      | GM,         | KE, | LS, | MW,        | MZ,             | NA,  | SD,  | SL, | SZ                               | z, TZ,          | UG,  | ZM,  | ZW, | AM, | AZ,      | BY,      |  |  |  |
|        |                      | KG,         | KΖ, | MD, | RU,        | ΤJ,             | TM   |      |     |                                  |                 |      |      |     |     |          |          |  |  |  |
| A      | AU 2006234441        |             |     |     |            | A1 20061019     |      |      |     |                                  | AU 2006-234441  |      |      |     |     |          | 20060407 |  |  |  |
|        | CA 2603320           |             |     |     |            |                 |      |      |     |                                  | CA 2006-2603320 |      |      |     |     |          |          |  |  |  |
| E      | P 1867               | 1867636     |     |     |            | A1 20071219     |      |      |     |                                  | EP 2006-731411  |      |      |     |     |          | 407      |  |  |  |
|        | R:                   | ΑT,         | BE, | BG, | CH,        | CY,             | CZ,  | DE,  | DK, | EF                               | E, ES,          | FI,  | FR,  | GB, | GR, | HU,      | ΙE,      |  |  |  |
|        |                      | IS,         | IT, | LI, | LT,        | LU,             | LV,  | MC,  | NL, | ΡI                               | L, PT,          | RO,  | SE,  | SI, | SK, | TR,      | AL,      |  |  |  |
|        | BA, HR, MK,          |             |     |     |            | YU              |      |      |     |                                  |                 |      |      |     |     |          |          |  |  |  |
| Z.     | ZA 2007008531        |             |     |     |            |                 | 2009 | 0225 |     | ZA 2007-8531                     |                 |      |      |     |     | 20060407 |          |  |  |  |
|        | IN 2007DN07326       |             |     |     |            | A 20071102      |      |      |     |                                  | IN 2007-DN7326  |      |      |     |     |          |          |  |  |  |
| U      | US 20090149439       |             |     |     |            | A1 20090611     |      |      |     |                                  | US 2007-910500  |      |      |     |     |          | 20071002 |  |  |  |
|        | MX 2007012490        |             |     |     |            |                 |      |      |     | MX 2007-12490                    |                 |      |      |     |     |          |          |  |  |  |
|        | KR 2007116865        |             |     |     |            |                 |      |      |     | KR 2007-722896                   |                 |      |      |     |     |          |          |  |  |  |
| C      | CN 101163678         |             |     |     |            | A 20080416      |      |      |     | CN 2006-80011439<br>NO 2007-5080 |                 |      |      |     | 2   | 20071008 |          |  |  |  |
| N      | NO 2007005080        |             |     |     |            |                 | 2007 | 1105 |     | ИО                               | 2007-           | 5080 |      |     | 2   | 0071     | 009      |  |  |  |
| PRIORI | IORITY APPLN. INFO.: |             |     |     |            |                 |      |      |     | JΡ                               | 2005-           | 1128 | 02   |     | A 2 | 0050     | 408      |  |  |  |
|        |                      |             |     |     |            |                 |      |      |     | JΡ                               | 2005-           | 3679 | 76   |     | A 2 | 0051     | 221      |  |  |  |
|        |                      |             |     |     |            |                 |      |      |     | WO                               | 2006-           | JP30 | 7464 |     | W 2 | 0060     | 407      |  |  |  |
| OTHER  | SOURCE               | (S):        |     |     | MAR:       | ARPAT 145:43853 |      |      |     |                                  |                 |      |      |     |     |          |          |  |  |  |

 $Ar^2$ 

GΙ

AB The title compds. I [Ar1 = Ph having substituents; Ar2 = (un)substituted Ph, (un)substituted heterocyclyl; Y = H, NR1R2, etc.; R1 = H, alkyl, OH; R2 = H, (un)substituted alkyl, (un)substituted alkoxycarbonyl, etc.; R3 = H, alkyl, halo; X = S, S0, S02; Z = O, S] are prepared Thus, 5-[[(4-chlorophenyl)sulfonyl](2,5-difluorophenyl)methyl]-N,4-dimethylpyridine-2-carboxamide was prepared in a multistep process from 2,5-dibromo-4-methylpyridine and 2,5-difluorobenzaldehyde. In an assay for the inhibiting activity against the production of  $\beta$ -amyloid protein, many compds. of this invention showed EC50 values  $\leq$  5 nM.

TOh 07/11/2009

Ι

IT 913090-88-7P 913090-89-8P

RL: PAC (Pharmacological activity); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(preparation of pyridylmethylsulfone derivs. as inhibitors of production/secretion of  $\beta$ -amyloid protein)

RN 913090-88-7 CAPLUS

CN 2-Pyridinecarboxaldehyde, 5-[(2,5-difluorophenyl)][[5-(trifluoromethyl)-2-pyridinyl]thio]methyl]-4-methyl- (CA INDEX NAME)

RN 913090-89-8 CAPLUS

CN 2-Pyridinecarboxylic acid, 5-[(2,5-difluorophenyl)[[5-(trifluoromethyl)-2-pyridinyl]sulfonyl]methyl]-4-methyl- (CA INDEX NAME)

IT 913090-90-1P

RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of pyridylmethylsulfone derivs. as inhibitors of production/secretion of  $\beta\text{--amyloid}$  protein)

RN 913090-90-1 CAPLUS

CN 2-Pyridinecarboxamide, 5-[(2,5-difluorophenyl)[[5-(trifluoromethyl)-2-pyridinyl]sulfonyl]methyl]-N-(2-hydroxyethyl)-4-methyl- (CA INDEX NAME)

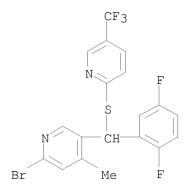
IT 913091-80-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of pyridylmethylsulfone derivs. as inhibitors of production/secretion of  $\beta$ -amyloid protein)

RN 913091-80-2 CAPLUS

CN Pyridine, 2-bromo-5-[(2,5-difluorophenyl)[[5-(trifluoromethyl)-2-pyridinyl]thio]methyl]-4-methyl- (CA INDEX NAME)



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD

(3 CITINGS)

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:14361 CAPLUS

DOCUMENT NUMBER: 142:113905

TITLE: Preparation of heterocyclic methyl sulfone derivatives

as  $\beta$ -amyloid protein secretion and production

inhibitors

INVENTOR(S): Kubota, Hideki; Yasukouchi, Takanori; Miyauchi,

Satoru; Motoki, Kayoko; Saito, Masanori; Iimori,

Hitoshi

PATENT ASSIGNEE(S): Daiichi Pharmaceutical Co., Ltd., Japan

SOURCE: PCT Int. Appl., 345 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

|     |                                |     |      |             |     |            |   | APPLICATION NO. |                       |                |          |     |          |      |                 |      |     |  |
|-----|--------------------------------|-----|------|-------------|-----|------------|---|-----------------|-----------------------|----------------|----------|-----|----------|------|-----------------|------|-----|--|
|     |                                |     |      |             |     |            |   |                 |                       |                | 2004-    |     |          | 0040 |                 |      |     |  |
|     | W:                             | ΑE, | AG,  | AL,         | AM, | ΑT,        | ΑU,   | AZ,             | ΒA,                   | BB             | BG,      | BR, | BW,      | BY,  | ΒZ,             | CA,  | CH, |  |
|     |                                | CN, | CO,  | CR,         | CU, | CZ,        | DE,   | DK,             | DM,                   | DZ             | EC,      | EE, | EG,      | ES,  | FΙ,             | GB,  | GD, |  |
|     |                                | GE, | GH,  | GM,         | HR, | HU,        | ID,   | IL,             | IN,                   | IS             | JP,      | ΚE, | KG,      | KP,  | KR,             | KΖ,  | LC, |  |
|     |                                | LK, | LR,  | LS,         | LT, | LU,        | LV,   | MA,             | MD,                   | MG             | G, MK,   | MN, | MW,      | MX,  | MZ,             | NA,  | NI, |  |
|     |                                | NO, | NΖ,  | OM,         | PG, | PH,        | PL,   | PT,             | RO,                   | RU             | J, SC,   | SD, | SE,      | SG,  | SK,             | SL,  | SY, |  |
|     |                                | ΤJ, | TM,  | TN,         | TR, | TT,        | TZ,   | UA,             | UG,                   | US             | J, UZ,   | VC, | VN,      | YU,  | ZA,             | ZM,  | ZW  |  |
|     | RW:                            | BW, | GH,  | GM,         | ΚE, | LS,        | MW,   | MZ,             | NA,                   | SD             | ), SL,   | SZ, | TZ,      | UG,  | ZM,             | ZW,  | ΑM, |  |
|     |                                | AΖ, | BY,  | KG,         | KΖ, | MD,        | RU,   | ТJ,             | TM,                   | ΑT             | BE,      | BG, | CH,      | CY,  | CZ,             | DE,  | DK, |  |
|     |                                |     |      | •           | •   |            |   |                 |                       |                | LU,      | •   |          |      | •               |      |     |  |
|     |                                |     |      |             | BF, | ВJ,        | CF,   | CG,             | CI,                   | CM             | I, GA,   | GN, | GQ,      | GW,  | $\mathrm{ML}$ , | MR,  | ΝE, |  |
|     | SN, TD, TG                     |     |      |             |     |            |   |                 |                       |                |          |     |          |      |                 |      |     |  |
|     |                                |     |      | A1 20050106 |     |            |   |                 |                       |                |          |     |          |      |                 |      |     |  |
|     | 2526487                        |     |      |             |     |            |   |                 |                       |                |          |     | 20040629 |      |                 |      |     |  |
| EP  | 1640366                        |     |      |             |     |            | 20060329 EP 2004-746601<br>ES, FR, GB, GR, IT, LI, LU |                 |                       |                |          |     |          |      |                 |      |     |  |
|     | R:                             |     |      |             |     |            |   |                 |                       |                |          |     |          |      | SE,             | MC,  | PT, |  |
| 017 | , , ,                          |     |      |             | •   | ,          |   |                 | G, CZ, EE, HU, PL, SK |                |          |     |          |      | 20040620        |      |     |  |
|     | N 1812964<br>N 100378072       |     |      |             |     |            | 2006  | 0802            | CN 2004-80016999      |                |          |     |          |      | 20040629        |      |     |  |
|     |                                |     | 2008 |             |     |            |   |                 |                       |                | 20040629 |     |          |      |                 |      |     |  |
|     | 2005009613<br>2336270          |     |      |             |     | 2007       |   |                 |                       |                |          |     |          |      |                 |      |     |  |
| -   |                                |     |      |             |     | 2006       |   |                 |                       |                |          |     |          |      |                 | -    |     |  |
|     | NO 2005005921<br>MX 2005013631 |     |      |             | Δ   |            | -   |                 |                       |                |          |     |          |      |                 |      |     |  |
|     | US 20060241302                 |     |      |             |     | A 20060224 |   |                 |                       | US 2005-561838 |          |     |          |      |                 |      |     |  |
|     |                                |     |      |             |     |            | 2006  |                 |                       |                | 2005-    |     |          |      |                 | 0051 |     |  |
|     | KR 2006066057<br>HK 1090362    |     |      |             |     |            | 2008  |                 |                       |                | 2006-    |     |          |      |                 | 0061 |     |  |
|     | ORITY APPLN. INFO.:            |     |      |             |     |            |   |                 |                       |                | 2003-    |     |          |      |                 | 0030 |     |  |
|     |                                |     | 0    | . •         |     |            |   |                 |                       |                | 2004-    |     |          |      |                 | 0040 |     |  |
|     |                                |     |      |             |     |            | JΡ  | 2003-           | 9915                  | 1              |          | A 2 |          |      |                 |      |     |  |
|     |                                |     |      |             |     |            |   |                 |                       |                | 2004-    |     |          |      |                 | 0040 |     |  |
|     |                                |     |      |             |     |            |   |                 |                       |                |          |     |          |      |                 |      |     |  |

OTHER SOURCE(S): MARPAT 142:113905

AB The title compds. R1R2R4CXR3 (R1 represents an optionally substituted heterocyclic group; R2 represents an optionally substituted cyclic hydrocarbon group or optionally substituted heterocyclic group; R3 represents an optionally substituted cyclic hydrocarbon group or optionally substituted heterocyclic group; R4 represents hydrogen or C1-6 alkyl; and X represents S, SO, or SO2), N-oxides thereof, S-oxides thereof, salts thereof, or solvates thereof are prepared  $2-[[(4-\text{Chlorophenyl})\text{sulfonyl}](\text{cyclohexyl})\text{methyl}]-1,4-difluorobenzene was prepared in several steps from 2,5-difluorobenzyl alc. and 4-chlorobenzenethiol. In an in vitro assay for <math display="inline">\beta$ -amyloid protein production inhibiting activity, compds. of this invention showed IC50 values of  $\leq 5$  nM to 500 nM.

IT 820223-95-8P 820223-96-9P
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of heterocyclic Me sulfone derivs. as  $\beta$ -amyloid protein secretion and production inhibitors)

RN 820223-95-8 CAPLUS

CN 2-Pyridinamine, 5-chloro-4-[[(5-chloro-2-pyridinyl)sulfonyl](2,5-difluorophenyl)methyl]- (CA INDEX NAME)

RN 820223-96-9 CAPLUS

CN Methanesulfonamide, N-[5-chloro-4-[[(5-chloro-2-pyridinyl)sulfonyl](2,5-difluorophenyl)methyl]-2-pyridinyl]- (CA INDEX NAME)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD

(2 CITINGS)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:532638 CAPLUS

DOCUMENT NUMBER: 139:101146

TITLE: Preparation of benzyl or heterocyclylmethyl phenyl or

heterocyclyl sulfones as  $\beta$ -amyloid protein

production/secretion inhibitors

INVENTOR(S): Yasukochi, Takanori; Ito, Masayuki; Kubota, Hideki;

Miyauchi, Satoshi; Saito, Masaki

PATENT ASSIGNEE(S): Daiichi Pharmaceutical Co., Ltd., Japan

SOURCE: PCT Int. Appl., 540 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

|       |                | CENT 1     |     |      |             | KIND DATE   |             |      |       |       |            | LICAT    | DATE     |          |            |       |       |     |
|-------|----------------|------------|-----|------|-------------|-------------|-------------|------|-------|-------|------------|----------|----------|----------|------------|-------|-------|-----|
|       |                | 2003055850 |     |      |             |             | A1 20030710 |      |       |       |            |          |          |          | 2          | 20021 | 227   |     |
|       |                | W:         | ΑE, | AG,  | AL,         | ΑM,         | ΑT,         | ΑU,  | AZ,   | BA,   | BB,        | , BG,    | BR,      | BY,      | BZ,        | CA,   | CH,   | CN, |
|       |                |            | CO, | CR,  | CU,         | CZ,         | DE,         | DK,  | DM,   | DZ,   | EC,        | , EE,    | ES,      | FΙ,      | GB,        | GD,   | GE,   | GH, |
|       |                |            | GM, | HR,  | HU,         | ID,         | IL,         | IN,  | IS,   | JP,   | KE,        | , KG,    | KP,      | KR,      | KΖ,        | LC,   | LK,   | LR, |
|       |                |            | LS, | LT,  | LU,         | LV,         | MA,         | MD,  | MG,   | MK,   | MN,        | , MW,    | MX,      | MΖ,      | NO,        | NZ,   | OM,   | PH, |
|       |                |            | PL, | PT,  | RO,         | RU,         | SC,         | SD,  | SE,   | SG,   | SK,        | , SL,    | ТJ,      | TM,      | TN,        | TR,   | TT,   | TZ, |
|       |                |            | UA, | UG,  | US,         | UZ,         | VC,         | VN,  | YU,   | ZA,   | ZM,        | , ZW     |          |          |            |       |       |     |
|       |                | RW:        | GH, | GM,  | ΚE,         | LS,         | MW,         | MZ,  | SD,   | SL,   | SZ,        | , TZ,    | UG,      | ZM,      | ZW,        | AM,   | AZ,   | BY, |
|       |                |            | KG, | KΖ,  | MD,         | RU,         | ΤJ,         | TM,  | ΑT,   | BE,   | BG,        | , СН,    | CY,      | CZ,      | DE,        | DK,   | EE,   | ES, |
|       |                |            | FΙ, | FR,  | GB,         | GR,         | ΙE,         | ΙΤ,  | LU,   | MC,   | NL,        | , PT,    | SE,      | SI,      | SK,        | TR,   | BF,   | ВJ, |
|       |                |            | CF, | CG,  | CI,         | CM,         | GΑ,         | GN,  | GQ,   | GW,   | $^{ m ML}$ | , MR,    | NE,      | SN,      | TD,        | ΤG    |       |     |
|       | CA 2471943     |            |     | A1   | A1 20030710 |             |             |      | CA 2  | 2002- | 2471       |          | 20021227 |          |            |       |       |     |
|       | ΑU             | 2002       |     |      |             | A1 20030715 |             |      |       |       |            |          |          |          |            |       |       |     |
|       | EΡ             | 1466       | 898 |      |             | A1          | A1 20041013 |      |       |       | EP 2       | 2002-    | 7909.    |          |            |       |       |     |
|       |                | R:         | ΑT, | BE,  | CH,         | DE,         | DK,         | ES,  | FR,   | GB,   | GR,        | , IT,    | LI,      | LU,      | NL,        | SE,   | MC,   | PT, |
|       |                |            |     |      |             |             |             | •    |       |       |            | , TR,    |          |          | ,          |       |       |     |
|       | CN 1585746     |            |     |      |             |             |             |      | -     |       | -          | 20021227 |          |          |            |       |       |     |
|       | RU 2304140     |            |     |      |             |             |             |      |       |       |            |          | 20021227 |          |            |       |       |     |
|       | JP 4329905     |            |     |      |             |             |             |      |       |       |            |          |          | 20021227 |            |       |       |     |
|       | US 20050234109 |            |     |      |             |             |             |      |       |       | US 2       | 2004-    | 5001     |          | 2          | 20040 | 625   |     |
|       |                | 7399       |     |      |             |             |             | 2008 |       |       |            |          |          |          |            |       |       |     |
|       | US 20070293495 |            |     |      |             | A1          |             | 2007 | 1220  |       |            | 2007-    |          |          |            |       | 20070 |     |
| PRIOF | RITY           | APP:       | LN. | INFO | .:          |             |             |      |       |       |            | 2001-    |          |          | A 20011227 |       |       |     |
|       |                |            |     |      |             |             |             |      |       |       | -          | 2002-    | -        | -        |            |       | 20021 |     |
|       |                |            |     |      |             |             |             | US 2 | 2004- | 5001  | 56         |          | A3 2     | 20040    | 625        |       |       |     |

OTHER SOURCE(S): MARPAT 139:101146

Novel compds. having various substituents as represented by the following general formula R1(R2)(R3)C-X-R4, salts thereof, and solvates of the same [wherein X = S, SO, SO2; R1 = CR5R6R7, NR8R9, X1R10, X2R11; wherein R5, R6, R7 = halo, cyano, NO2, -Q51-Q52-Q53-Q54; Q51, Q53 = single bond, CO, S(0), SO2, COCO, COC(S), C(S)C(S); Q52 = single bond, O, ON(A51), ON(COA51), N(A51), N(COA51), N(CO2A51), N[CON(A51)(A52)], N(OA51), N(NA51A52), N(A51)N(A52), N(COA51)N(A52), N(A51)-O, N(COA51)-O, N:N, C(A51):N, C(A51):N-O, C(A51):N-N(A52), N:C(A51), O-N:C(A51),N(A51)-N:C(A52), C(:NA51)-N(A52); Q54 = A53, OA53, N(A53) (A54), SA53, NA54-OA53, NA55-N(A53)(A54), O-N(A53)(A54); wherein A51, A52, A53 = H, (un) substituted hydrocarbyl or heterocyclyl; R2, R3, R4, R8, R9, R10, R11 = -Q51-Q52-Q53-Q54 defined in R5-R7; X1 = 0, S; X2 = S0, S02; or R1 and R2 or R3 and R4 are combined together to form (un)substituted cyclohydrocarbyl or heterocyclyl] are prepared These compds. have an effect of inhibiting the production/secretion of a  $\beta$ -amyloid protein and are useful for the prevention or treatment of diseases caused by unusual production/secretion of  $\beta$ -amyloid, in particular Alzheimer's disease or Down's syndrome. Thus, a solution of 100 mg 2,5-dichloro-4-[(4-chlorophenylthio)-(2,5-difluorophenyl)methyl]pyridine (preparation given) and 200  $\mu$ L morpholine in 1.0 mL 1,4-dioxane was stirred at 100° for 2 days to give 4-[5-chloro-4-[(4-chlorophenylthio)-(2,5difluorophenyl)methyl]pyridin-2-yl]morpholine which (90 mg) was dissolved in 12 mL MeOH, treated with 60 mg ammonium molybdate tetrahydrate [(NH4)6M07024.4H20] and 6 mL 30% H202, and stirred for 8 h to give 83% 4-[5-chloro-4-[(4-chlorophenylsulfonyl)-(2,5-difluorophenyl)methyl]pyridin-2-yl]morpholine (I). I in vitro glioma cell (H4 cell) expressing human

 $\beta\text{--amyloid}$  protein precursor protein gene (APP751 gene) with EC50 of  ${\leq}50~\text{nM}.$ 

IT 558463-33-5P

RL: PAC (Pharmacological activity); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(preparation of benzyl or heterocyclylmethyl Ph or heterocyclyl sulfones as  $\beta$ -amyloid protein production/secretion inhibitors for treatment or preparation of Alzheimer's disease or Down's syndrome)

RN 558463-33-5 CAPLUS

CN Pyridine, 5-chloro-2-[[(2,5-difluorophenyl)-4-pyridinylmethyl]thio]- (CA INDEX NAME)

IT 558463-34-6P

RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of benzyl or heterocyclylmethyl Ph or heterocyclyl sulfones as  $\beta$ -amyloid protein production/secretion inhibitors for treatment or preparation of Alzheimer's disease or Down's syndrome)

RN 558463-34-6 CAPLUS

CN Pyridine, 5-chloro-2-[[(2,5-difluorophenyl)-4-pyridinylmethyl]sulfonyl]- (CA INDEX NAME)

OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (12 CITINGS)

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT